REMARKS

Applicants thank the Examiner for the very thorough consideration given the present application. Claims 1-7 remain in the application and claim 1 is independent.

The Office Action dated March 5, 2009 has been received and carefully reviewed. Each issue raised in the Office Action is addressed below. Reconsideration and allowance of the present application are respectfully requested in view of the following remarks.

Priority Under 35 U.S.C. § 119

Applicants thank the Examiner for acknowledging Applicants' claim for foreign priority under 35 U.S.C. § 119(a), and receipt of the certified priority document.

Allowable Subject Matter

Claim 2 has been objected to and no rejection has been presented. Accordingly, claim 2 becomes allowable by operation of 35 U.S.C. § 102. Applicants appreciate this early indication of patentable subject matter, and have endeavored to bring the prosecution to a prompt conclusion by presenting allowable claims.

Reference to Priority

Page 2 of the Office Action requires an insertion at the beginning of the specification, making reference to this application being the national phase application of an International Application. Responsive thereto, applicants have amended the specification to make reference to the PCT Application as well as the Japanese foreign priority document. Additionally, it is noted the Examiner has indicated acknowledgement of a claim for domestic priority under 35 U.S.C. § 119(e). Inasmuch as there is no national provisional application for this application, Applicants request clarification as to what priority claim is being referenced.

Claim Rejections – 35 U.S.C. § 103

Claims 1, 3-5 and 7 stand rejected under 35 U.S.C. § 103(a) as allegedly unpatentable over JP 2004-044569 to Hokotani et al. ("Hokotani") in view of JP 07-217406 to Origasa et al.

("Origasa"). Applicants submit the Examiner has failed to establish a *prima facie* case of obviousness and respectfully traverse the rejection. A complete discussion of the Examiner's rejection is set forth in the Office Action, and is not being repeated here.

In order to establish a *prima facie* case of obviousness under 35 U.S.C. § 103(a), the cited references must teach or suggest each and every element in the claims. See M.P.E.P. § 706.02(j); M.P.E.P. 2141-2144.

While not conceding the appropriateness of the Examiner's rejection, but merely to advance prosecution of the instant application, Applicants respectfully submit that independent claim 1 has been amended to recite a combination of elements in a rotary expander including fluid that expands while flowing from the low-pressure chamber of the front-stage side rotary mechanism part into the high-pressure chamber of the rear-stage side rotary mechanism part. In compliance with the requirement to point out support for any amendments, support for the changes to claim 1 may be found in paragraphs [0022] and [0086]. Hokotani might broadly be construed as showing in Figure 25 a rotary expander comprising two cylinders 81, 82 and two pistons 65, 65. However, this rotary expander has different structure from the rotary expander of the present invention, and the present invention is not obvious by applying the "injection passageway 3" of Origasa to the rotary expander of Hokotani.

A brief review of the rotary expander of the present invention may be helpful at this point. In the instant claimed rotary expander, the low-pressure chamber of the front-stage side rotary mechanism part and the high-pressure chamber of the rear-stage side rotary mechanism part are in communication with each other to form a single expansion chamber, as can be seen for example in Figure 5.

Next, we refer to the rotary expander of Hokotani, first using FIGS. 3-11 therein. In this rotary expander, a front head (63) is provided with an inflow port (36) and a groove-shaped passage (69), and an eccentric part (46) of a shaft (45) is provided with a communicating passage (70). Refrigerant flows into the inflow port (36) from the outside of the expander. The groove-shaped passage (69) is always in communication with an expansion chamber (62). As shown in FIG. 3, when the shaft (45) rotates, the communicating passage (70) changes the position in accordance with the rotation. In this rotary expander, only while the communicating passage

(70) overlaps both of the inflow port (36) and the groove-shaped passage (69), the inflow port (36) and the expansion chamber (62) come into communication with each other. That is, as described in Hokotani, paragraphs [0087]-[0094], in this rotary expander, refrigerant flows from the inflow port (36) into the expansion chamber (62), from the time when the rotation angle of the shaft (45) slightly exceeds 0°, to the time when the angle slightly exceeds 90°.

In the rotary expander shown in FIG. 25 of Hokotani, as shown in paragraph [0144] and FIG. 26, high-pressure refrigerant (refrigerant before expansion) flows into both of the expansion chamber (62) in the first cylinder (81) and the expansion chamber (62) in the second cylinder (82). The high-pressure refrigerant, which has flowed into the expansion chamber (62) in the first cylinder (81), expands only in that expansion chamber (62) to become low-pressure refrigerant, and the high-pressure refrigerant, which has flowed into the expansion chamber (62) in the second cylinder (82), expands only in that expansion chamber (62) to become low-pressure refrigerant.

As set forth above, in the rotary expander in FIG. 25 of Hokotani, the high-pressure refrigerant, which has flowed into the rotary expander, flows through either one of the expansion chamber (62) in the first cylinder (81) and the expansion chamber (62) in the second cylinder (82) to flow out from the rotary expander. By contrast, as set forth above, in the claimed rotary expander of the instant invention, the high-pressure fluid, which has flowed into the rotary expander, expands while flowing from the low-pressure chamber of the front-stage side rotary mechanism part into the high-pressure chamber of the rear-stage side rotary mechanism part. Therefore, the claimed rotary expander is quite different in structure and function from the rotary expander of Hokotani.

Origasa shows a machine having two expanders (1, 2) connected in series. The fluid which has flowed into this machine first expands in the first expander (1), and then, flows into the second expander (2) to expand further. Therefore, the machine of Origasa differs significantly from the claimed rotary expander (in which the high-pressure fluid which has flowed into the expander expands while flowing from the front-stage side rotary mechanism part into the rear-stage side rotary mechanism part).

Even if it were obvious to connect two cylinders in series in the rotary expander of Hokotani, which we do not admit, the claimed rotary expander cannot be obtained just by connecting the cylinders (81 and 82) in series in the rotary expander shown in FIG. 25 of Hokotani. This is because, as set forth above, in the rotary expander in FIG. 25 of Hokotani, the high-pressure refrigerant, which has flowed into the expansion chamber (62) in the first cylinder (81), expands only in that expansion chamber (62) to become low-pressure refrigerant; and the high-pressure refrigerant, which has flowed into the expansion chamber (62) in the second cylinder (82), expands only in that expansion chamber (62) to become low-pressure refrigerant. Thus, in the rotary expander in FIG. 25 of Hokotani, when the two cylinders (81 and 82) are connected in series; the high-pressure refrigerant, which has flowed into the expansion chamber (62) in the first cylinder (81), expands in the expansion chamber (62) in the first cylinder (81) to become middle-pressure refrigerant; then flows into the expansion chamber (62) in the second cylinder (82), and after that, expands in the expansion chamber (62) in the second cylinder (82) to become low-pressure refrigerant. Therefore, the rotary expander in FIG. 25 of Hokotani, in which for purposes of discussion two cylinders (81 and 82) are connected in series, has a different structure from the claimed rotary expander (i.e., an expander in which the high-pressure fluid flowed inside expands while flowing from the front-stage side rotary mechanism part into the rear-stage side rotary mechanism part).

As discussed above, the claimed rotary expander has a different structure from the rotary expander shown in FIG. 25 of Hokotani. Furthermore, the claimed rotary expander cannot be met by connecting two cylinders (81 and 82) in series in the rotary expander shown in FIG. 25 of Hokotani. Therefore, the claimed invention is not shown or suggested by Hokotani and Origasa, either alone or in combination and therefore cannot be considered to be obvious to one of ordinary skill in the art. Applicants respectfully submit that this combination of elements as set forth in independent claim 1 is not disclosed or made obvious by the prior art of record, including Hokotani and Origasa. Accordingly, reconsideration and withdrawal of this rejection are respectfully requested. With regard to dependent claims 3-5 and 7, Applicants submit that claims 3-5 and 7 depend, either directly or indirectly, from independent claim 1 which is allowable for the

reasons set forth above, and therefore claims 3-5 and 7 are allowable based on their dependence from claim 1. Reconsideration and allowance thereof are respectfully requested.

Claim 6 stands rejected under 35 U.S.C. § 103(a) as allegedly unpatentable over Hokotani in view of Origasa, and further in view of JP 61-122301 ("JP '301"). This rejection is also respectfully traversed. JP '301 is relied upon to show a differential pressure regulating valve 15. JP '301 does not show a low-pressure chamber of the front-stage side rotary mechanism and a high-pressure chamber of the rear-stage side rotary mechanism part coming into fluid communication with each other, resulting in the formation of a single expansion chamber, and fluid expansion while flowing from the low-pressure chamber of the front-stage side rotary mechanism part into the high-pressure chamber of the rear-stage side rotary mechanism part, and therefore cannot remedy the defects of Hokotani and Origasa with respect to claim 1. Reconsideration and withdrawal of this rejection are respectfully requested.

Conclusion

All objections and rejections raised in the Office Action having been properly traversed and addressed, it is respectfully submitted that the present application is in condition for allowance. Applicants therefore respectfully request that the Examiner reconsider all presently outstanding rejections and that they be withdrawn. It is believed that a full and complete response has been made to the outstanding Office Action, and as such, the present application is in condition for allowance. Notice of same is earnestly solicited.

Prompt and favorable consideration of this Amendment is respectfully requested.

If the Examiner believes, for any reason, that personal communication will expedite prosecution of this application, the Examiner is invited to telephone Paul T. Sewell, Registration No. 61,784, at (703) 205-8000, in the Washington, D.C. area.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. §§ 1.16 or 1.14; particularly, extension of time fees.

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Respectfully submitted,

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